

## Taxonomic changes regarding three species of *Zingiber* (Zingiberaceae) from Thailand

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**Abstract** *Zingiber teres* S. Q. Tong & Y. M. Xia and *Z. xishuangbannaense* S. Q. Tong are reduced to be synonyms of *Z. smilesianum* Craib and *Z. thorelii* Gagnep., respectively. *Z. cochinchinense* Gagnep. is changed to be a subspecies of *Z. zerumbet* (L.) Sm.

**Key words** new synonym, Thailand, Zingiberaceae, *Zingiber*, *Zingiber cochinchinense*, *Zingiber smilesianum*, *Zingiber teres*, *Zingiber thorelii*, *Zingiber xishuangbannaense*, *Zingiber zerumbet*, new statement.

Since the genus *Zingiber* was proposed by Miller (1731), more than 200 specific names have been proposed. However most of these are superfluous, homonyms and synonyms of earlier names. During the continuous work of the authors on the genus for the *Flora of Thailand*, specimens from neighbouring countries have been examined. In this connection we have found that variation ranges of several species are wider than what was known earlier. It has therefore been necessary to redefine some previously known taxa.

*Zingiber teres* S. Q. Tong & Y. M. Xia and *Z. xishuangbannaense* S. Q. Tong are species described as endemic to southern China (Tong & Xia, 1987). The former was found to be common on high elevation in hill evergreen forests in northern and northeastern Thailand, whereas the latter shows a wide variation in many characters such as height, colour and size of the spike and flowers. Both species have spread from China into many regions of Thailand except the south. Our studies have shown overlapping characters between *Z. smilesianum* Craib and *Z. teres* and between *Z. thorelii* Gagnep. and *Z. xishuangbannaense* (Gagnepain, 1907; Craib, 1912). Therefore we propose the following nomenclatural changes.

**1. *Zingiber smilesianum*** Craib in Bull. Misc. Inform. 10: 403. 1912. Type: Thailand. Chiang Mai, Doi Sootep (Sutep), *Kerr 1311 a* (lectotype, K!; isolectotypes, BM!, E!).

*Z. teres* S. Q. Tong & Y. M. Xia in Acta Phytotax. Sin. 25: 468. 1987, syn. nov. Type: China. Yunnan: Monglian, *S. Q. Tong & Y. M. Xia 42403* (holotype, YNTBI; isotype, KUN!).

**2. *Zingiber thorelii*** Gagnep. in Bull. Soc. Bot. France 54: 169. 1907. Type: Mekong, *Thorel 2363* (lectotype, P!).

*Z. xishuangbannaense* S. Q. Tong, S. Q. Tong & Y. M. Xia in Acta Phytotax. Sin. 25: 461. 1987, syn. nov. Type: China. Yunnan: Mengla, *S. Q. Tong 24808* (holotype, YNTBI; isotype, KUN!).

The vegetative characters of *Zingiber cochinchinense* Gagnep. are very similar to those of *Z. zerumbet* (L.) Sm. and, indeed, herbarium specimens are quite difficult to distinguish. The former is a small plant, 0.4–0.9 m high while the latter is somewhat larger in size, 0.5–1.7 m high, with blades broadly lanceolate to obovate in shape and ligules entire. Moreover, they differ in many morphological characters of the reproductive parts. For example, the spike of *Z. cochinchinense* is dominantly ovate to fusiform in shape with short and slender scape while that of *Z. zerumbet* is ovate, conical or ovoid-oblong with a long and vigorous scape.

However, the floral structures of both species are essentially identical. The flower size of *Z. cochinchinense* is always smaller than that of *Z. zerumbet*. The inside of the labellum of the former species has brown tiny patches while that of the latter species is pure cream in colour without dot or patches.

In Thailand, *Zingiber zerumbet* is a common species, which has been found throughout the country in dry evergreen forests at the sea level to seasonal evergreen forests in high mountains up to ca. 1200 m of elevation. *Z. cochinchinense*, on the other hand, is found only in dry evergreen forests in northeastern parts of the country. We accordingly propose that *Z. cochinchinense* be reduced to a subspecies under *Z. zerumbet*.

In his description of *Z. cochinchinense*, Gagnepain referred to two syntypes, *Thorel s.n.* from Laos at Stung-treng (Stoeng Treng now in Cambodia) and *Harmand 863* from Cochinchine at Poulo Condor (now in Vietnam). The former was chosen as a lectotype as the specimen is better preserved than the latter.

***Zingiber zerumbet* (L.) Sm. ssp. *cochinchinense* (Gagnep.) Triboun & Larsen, stat. nov.**  
—*Z. cochinchinense* Gagnep., Bull. Soc. Bot. France 54: 167. 1907. Type: Cambodia. Stoeng Treng, *Thorel s.n.* (P No. 00289146, lectotype, P!)

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